AMENDMENTS TO THE CLAIMS:

The following listing of claims replaces all prior listings, and all prior versions, of claims in the application:

Listing of Claims

1. (currently amended) A method of fabricating a semiconductor device comprising the steps of:

(a) forming an oxidation prevention film on a circuit formation surface of a semiconductor substrate;

(b) forming a trench having a desired depth at a predetermined position of the circuit formation surface of said semiconductor substrate, said trench having an upper end portion adjacent the circuit formation surface of the semiconductor substrate;

(c) thermally oxidizing a trench portion formed in said semiconductor substrate, exposed in said trench, so as to form a first curvature of the upper end portion of the trench;

(d) burying a buried insulating film into said trench so thermally oxidized, said insulating film also being formed on the oxidation prevention film;

(e) after burying said buried insulating film, removing said insulating film on the oxidation prevention film, by chemical mechanical polishing, thereby forming a chemically mechanically polished surface;

(f) after said removing, performing selective thermal oxidation of said semiconductor substrate after having formed said chemically mechanically polished

surface, so as to thermally oxidize only a portion of said semiconductor substrate, at said upper end portion of the trench, and not substantially at other portions of the semiconductor substrate lining the trench, so as to ~~provide~~ increase a curvature of the upper end portion of the trench substantially without oxidizing the other portions of the semiconductor substrate lining the trench;

(g) eliminating said oxidation prevention film formed on said semiconductor substrate; and

(h) after said eliminating, forming a gate oxide film.

2. (currently amended) A method of fabricating a semiconductor device comprising the steps of:

(a) forming an oxidation prevention film on a circuit formation surface of a semiconductor substrate;

(b) forming shallow trenches having a radius of curvature at corners in a desired position of the circuit formation surface of said semiconductor substrate;

(c) forming trenches having a predetermined depth to said shallow trenches having a radius of curvature so formed;

(d) thermally oxidizing trench portions formed in said semiconductor substrate, exposed in said trenches, so as to form a further radius of curvature at the corners, at upper end portions of the trenches;

(e) burying a buried insulating film into said trenches so thermally oxidized, with said insulating film being formed on said oxidation prevention film;

(f) removing said insulating film formed on said oxidation prevention film, by

chemical mechanical polishing, thereby forming a chemically mechanically polished surface;

(g) after said removing, performing selective thermal oxidation of said semiconductor substrate after having formed said chemically mechanically polished surface, so as to oxidize[[;]] only a portion of the semiconductor substrate extending from said corners, and not substantially at other portions of the semiconductor substrate lining the trenches, ~~after said removing~~, so as to increase the radius of curvature of the shallow trenches, substantially without oxidizing the other portions of the semiconductor substrate lining the trenches;

(h) eliminating said oxidation prevention film formed on said semiconductor substrate; and

(i) after said eliminating, forming a gate oxide film.

3. (previously presented) A method of fabricating a semiconductor device according to claim 2, wherein said step for forming shallow trenches is carried out by isotropic etching and said step for forming trenches having a predetermined depth is carried out by isotropic etching.

4. (currently amended) A method of fabricating a semiconductor device comprising the steps of:

(a) forming an oxidation prevention film on a circuit formation surface of a semiconductor substrate;

(b) forming trenches having a predetermined depth at desired positions of

the circuit formation surface of said semiconductor substrate, said trenches having upper end portions not covered by said oxidation prevention film;

(c) thermally oxidizing trench portions formed in said semiconductor substrate, exposed in said trenches, so as to form a first curvature of the upper end portions of the trenches;

(d) burying a buried insulating film into said trenches so thermally oxidized, said insulating film also being formed on said oxidation prevention film;

(e) removing said insulating film on said oxidation prevention film by, chemical mechanical polishing, thereby forming a chemically mechanically polished surface;

(f) after said removing, performing selective thermal oxidation of said semiconductor substrate after having formed said chemically mechanically polished surface, so as to oxidize[[;]] only a portion of said semiconductor substrate at said upper end portions of said trenches, and not substantially at other portions of the semiconductor substrate lining the trenches, said upper end portions not covered by said oxidation prevention film being oxidized, so as to increase a curvature of the upper end portions of said trenches, substantially without oxidizing the other portions of the semiconductor substrate lining the trenches;

(g) removing said oxidation prevention film formed on the circuit formation surface of said semiconductor substrate; and

(h) after said selectively thermally oxidizing said semiconductor substrate, forming a gate oxide film.

5. (currently amended) A method of fabricating a semiconductor substrate comprising the steps of:

(a) forming an oxidation prevention film on a circuit formation surface of a semiconductor substrate;

(b) forming shallow trenches having a radius of curvature at corners in desired positions of the circuit formation surface of said semiconductor substrate;

(c) forming trenches having a predetermined depth in said shallow trenches having a radius of curvature;

(d) thermally oxidizing trench portions formed in said semiconductor substrate, exposed in said trenches, so as to form a further radius of curvature of the corners, at upper end portions of the trenches;

(e) burying a buried insulating film into said trenches so thermally oxidized, said insulating film also being formed on said oxidation prevention film;

(f) removing said insulating film formed on said oxidation prevention film, by chemical mechanical polishing, thereby forming a chemically mechanically polished surface;

(g) after said removing, performing selective thermal oxidation of said semiconductor substrate after having formed said chemically mechanically polished surface, so as to oxidize only a portion of said semiconductor substrate extending from said corners, and not substantially at other portions of the semiconductor substrate lining the trenches, so as to increase the radius of curvature of the shallow trenches at said corners, substantially without oxidizing the other portions of the semiconductor substrate lining the trenches;

(h) removing said oxidation prevention film formed on the circuit formation surface of said semiconductor substrate; and

(i) after said selectively thermally oxidizing said semiconductor substrate, forming a gate oxide film.

6. (previously presented) A method of fabricating a semiconductor device according to claim 5, wherein said step for forming shallow trenches is carried out by isotropic etching and said step for forming trenches having a predetermined depth is carried out by anisotropic etching.

7. - 8. (Cancelled)

9. (currently amended) A method of fabricating a semiconductor device comprising the steps of:

(a) forming an oxidation prevention film on a circuit formation surface of a semiconductor substrate,

(b) forming trench regions in said substrate from said circuit formation surface thereof,

(c) performing a first thermal oxidation to form an oxide film on said trench regions formed in step (b), and to form a first curvature at upper end portions of said trench regions formed in step (b), and

(d) forming an insulating film inside said thermally oxidized trench regions so as to completely fill them, thereby forming completely filled trench regions, and forming the

insulating film on the oxidation prevention film,

characterized by further steps of:

(e) removing said insulating film formed on the oxidation prevention film, by chemical mechanical polishing, thereby forming a chemically mechanically polished surface;

(f) after said removing, performing a second thermal oxidation, of said semiconductor substrate after having formed said chemically mechanically polished surface, so as to selectively oxidize only an opening side of said completely filled trench regions in said substrate, and not substantially at other portions of the semiconductor substrate lining the trench regions, so as to increase a curvature at the upper end portions of said trench regions, substantially without oxidizing the other portions of the semiconductor substrate lining the trench regions; and

(g) after performing the second thermal oxidation, removing said oxidation prevention film, and forming a gate oxide film.

10. (currently amended) A method of fabricating a semiconductor device comprising the steps of:

(a) forming an oxidation prevention film on a circuit formation surface of a semiconductor substrate;

(b) forming a trench having a desired depth at a predetermined position of the circuit formation surface of said semiconductor substrate, the trench having an upper end portion thereof extending to the circuit formation surface of the semiconductor substrate;

(c) thermally oxidizing a trench portion formed in said semiconductor substrate, exposed in said trench, so as to form a first curvature of the upper end portion of the trench;

(d) burying a buried insulating film into said trench so thermally oxidized, the insulating film also being formed on the oxidation prevention film;

(e) removing the insulating film formed on the oxidation prevention film, by chemical mechanical polishing, thereby forming a chemically mechanically polished surface;

(f) after said removing, performing selective thermal oxidation of said semiconductor substrate, after having formed said chemically mechanically polished surface, so as to oxidize only a portion of the semiconductor substrate, at the upper end portion of said trench and not substantially at other portions of the semiconductor substrate lining the trench, to ~~provide~~ increase the curvature of the upper end portion ~~with a curvature~~ of the trench, substantially without oxidizing the other portions of the semiconductor substrate lining the trench;

and

(g) removing said oxidation prevention film formed on the circuit formation surface of said semiconductor substrate.

11. (cancelled)

12. (previously presented) A method of fabricating a semiconductor device according to claim 10, wherein said providing the curvature includes forming bird's beaks at the upper end portion of the trench.

13. (previously presented) A method of fabricating a semiconductor device according to claim 10, wherein said providing the curvature is performed such that an angle (θ) between the circuit formation surface of the semiconductor substrate and a side surface of the semiconductor substrate forming the trench is within a range of $90° < \theta < 180°$.

14. (cancelled)

15. (currently amended) A method of fabricating a semiconductor device comprising the steps of:

(a) forming an oxidation prevention film on a circuit formation surface of a semiconductor substrate;

(b) forming a trench having a desired depth at a predetermined position of the circuit formation surface of said semiconductor substrate, the trench having an upper end portion thereof extending to the circuit formation surface of the semiconductor substrate;

(c) thermally oxidizing a trench portion formed in said semiconductor substrate, exposed in said trench, so as to provide the upper end portion of said trench with a curvature;

(d) burying a buried insulating film into said trench so thermally oxidized, the insulating film also being formed on the oxidation prevention film;

(e) removing said insulating film formed on said oxidation prevention film, having said buried insulating film in said trench, by chemical mechanical polishing, thereby forming a chemically mechanically polished surface;

(f) after said removing, performing selective thermal oxidation of said semiconductor substrate, after having formed said chemically mechanically polished surface, only at the upper end portion of the trench, to increase the curvature of the upper end portion of the trench as compared with the curvature provided in step (c), substantially without oxidizing other portions of the semiconductor substrate lining the trench; and

(g) removing said oxidation prevention film formed on the circuit formation surface of said circuit substrate.

16. - 17.(cancelled)

18. (previously presented) A method of fabricating a semiconductor device according to claim 1, wherein said buried insulating film is made of silicon oxide.

19. (previously presented) A method of fabricating a semiconductor device according to claim 18, wherein the silicon oxide is a deposited silicon oxide.

20. (previously presented) A method of fabricating a semiconductor device according to claim 19, wherein said deposited silicon oxide is deposited by chemical vapor deposition or sputtering.

21. (previously presented) A method of fabricating a semiconductor device according to claim 2, wherein said buried insulating film is made of silicon oxide.

22. (previously presented) A method of fabricating a semiconductor device according to claim 21, wherein the silicon oxide is a deposited silicon oxide.

23. (previously presented) A method of fabricating a semiconductor device according to claim 22, wherein said deposited silicon oxide is deposited by chemical vapor deposition or sputtering.

24. (previously presented) A method of fabricating a semiconductor device according to claim 4, wherein said buried insulating film is made of silicon oxide.

25. (previously presented) A method of fabricating a semiconductor device according to claim 24, wherein the silicon oxide is a deposited silicon oxide.

26. (previously presented) A method of fabricating a semiconductor device according to claim 25, wherein said deposited silicon oxide is deposited by chemical vapor deposition or sputtering.

27. (previously presented) A method of fabricating a semiconductor substrate according to claim 5, wherein said buried insulating film is made of silicon oxide.

28. (previously presented) A method of fabricating a semiconductor substrate according to claim 27, wherein the silicon oxide is a deposited silicon oxide.

29. (previously presented) A method of fabricating a semiconductor substrate according to claim 28, wherein said deposited silicon oxide is deposited by chemical vapor deposition or sputtering.

30. (previously presented) A method of fabricating a semiconductor device according to claim 9, wherein said insulating film is made of silicon dioxide.

31. (previously presented) A method of fabricating a semiconductor device according to claim 30, wherein the silicon oxide is a deposited silicon oxide.

32. (previously presented) A method of fabricating a semiconductor device according to claim 31, wherein said deposited silicon oxide is deposited by chemical vapor deposition or sputtering.

33. (previously presented) A method of fabricating a semiconductor device according to claim 10, wherein said buried insulating film is made of silicon oxide.

34. (previously presented) A method of fabricating a semiconductor device according to claim 33, wherein the silicon oxide is a deposited silicon oxide.

35. (previously presented) A method of fabricating a semiconductor device according to claim 34, wherein said deposited silicon oxide is deposited by chemical vapor deposition or sputtering.

36. (previously presented) A method of fabricating a semiconductor device according to claim 15, wherein said buried insulating film is made of silicon oxide.

37. (previously presented) A method of fabricating a semiconductor device according to claim 36, wherein the silicon oxide is a deposited silicon oxide.

38. (previously presented) A method of fabricating a semiconductor device according to claim 37, wherein said deposited silicon oxide is deposited by chemical vapor deposition or sputtering.

39. (currently amended) A method of fabricating a semiconductor device according to claim 15, wherein the step (f) of removing said oxidation prevention film is performed after said [[_]] performing thermal oxidation.

40. (cancelled)

41. (currently amended) A method of fabricating a semiconductor device comprising the steps of:

(a) forming an oxidation prevention film on a circuit formation surface of a semiconductor substrate;

(b) forming a trench having a desired depth at a predetermined position of the circuit formation surface of said semiconductor substrate, said trench having an upper end portion adjacent the circuit formation surface of the semiconductor substrate;

(c) thermally oxidizing a trench portion formed in said semiconductor substrate, exposed in said trench, forming a curvature of said upper end portion of said trench;

(d) burying a buried insulating film into said trench so thermally oxidized, the insulating film also being formed on the oxidation prevention film;

(e) removing the insulating film formed on the oxidation prevention film, by chemical mechanical polishing, thereby forming a chemically mechanically polished surface;

(f) after said removing, performing selective thermal oxidation of said semiconductor substrate after having formed said chemically mechanically polished surface, only at said upper end portion so as to provide an increased curvature of the upper end portion of the trench as compared with the curvature formed in step (c),

substantially without oxidizing other portions of the semiconductor substrate lining the trench;

(g) eliminating said oxidation prevention film formed on said semiconductor substrate; and

(h) after said eliminating, forming a gate oxide film.

42. (currently amended) A method of fabricating a semiconductor device according to claim 41, wherein the step (g) of eliminating said oxidation prevention film is performed after the step (f) of selectively thermally oxidizing said semiconductor substrate at said upper end portion.

43. (currently amended) A method of fabricating a semiconductor device comprising the steps of:

(a) forming an oxidation prevention film on a circuit formation surface of a semiconductor substrate;

(b) forming shallow trenches having a radius of curvature at corners in a desired position of the circuit formation surface of said semiconductor substrate;

(c) forming trenches having a predetermined depth to said shallow trenches having a radius of curvature so formed;

(d) thermally oxidizing trench portions formed in said semiconductor substrate, exposed in said trenches, so as to increase the radius of curvature at said corners;

(e) burying a buried insulating film into said trenches so oxidized, said insulating film also being formed on the oxidation prevention film;

(f) removing said insulating film formed on the oxidation prevention film, by chemical mechanical polishing, thereby forming a chemically mechanically polished surface;

(g) performing ~~the~~ selective thermal oxidation of the semiconductor substrate after having formed said chemically mechanically polished surface, after said removing, so as to further increase the radius of curvature at the corners of the shallow trenches as compared to the radius of curvature formed in step (b), substantially without oxidizing other portions of the semiconductor substrate lining the trenches;

(h) eliminating said oxidation prevention film formed on said semiconductor substrate; and

(i) after said eliminating, forming a gate oxide film.

44. (currently amended) A method of fabricating a semiconductor device according to claim 43, wherein the step (h) of eliminating said oxidation prevention film is performed after the step (g) of selectively thermally oxidizing.

45. (currently amended) A method of fabricating a semiconductor device comprising the steps of:

(a) forming an oxidation prevention film on a circuit formation surface of a semiconductor substrate;

(b) forming trenches having a predetermined depth at desired positions of the circuit formation surface of said semiconductor substrate, said trenches having upper end portions not covered by said oxidation prevention film;

(c) thermally oxidizing trench portions formed in said semiconductor substrate, exposed in said trenches, so as to provide a curvature at said upper end portions of the trenches;

(d) burying a buried insulating film into said trenches so thermally oxidized, the insulating film also being formed on the oxidation prevention film;

(e) removing the insulating film on the oxidation prevention film, by chemical mechanical polishing, thereby forming a chemically mechanically polished surface;

(f) performing selective thermal oxidation of said semiconductor substrate after having formed said chemically mechanically polished surface after said insulating film formed on said oxidation prevention film is removed, said upper end portions not covered by said oxidation prevention film being oxidized, so as to increase a curvature at said upper end portions of the trenches, substantially without oxidizing other portions of the semiconductor substrate lining the trenches;

(g) removing said oxidation prevention film formed on the circuit formation surface of said semiconductor substrate; and

(h) after said oxidizing said semiconductor substrate, forming a gate oxide film.

46. (currently amended) A method of fabricating a semiconductor device comprising the steps of:

(a) forming an oxidation prevention film on a circuit formation surface of a semiconductor substrate,

(b) forming trench regions in said substrate from said circuit formation

surface thereof,

(c) performing a first thermal oxidation to form an oxide film on said trench regions formed in step (b), so as to provide a curvature at an opening side of the trench regions, and

(d) forming an insulating film inside said thermally oxidized trench regions so as to completely fill them, the insulating film also being formed on the oxidation prevention film

characterized by further steps of:

(e) removing said insulating film formed on the oxidation prevention film, by chemical mechanical polishing, thereby forming a chemically mechanically polished surface;

(f) after said removing, performing a selective second thermal oxidation of said semiconductor substrate after having formed said chemically mechanically polished surface to selectively oxidize only the opening side of said completely filled trench regions in said substrate, so as to provide an increased curvature at the opening side as compared to said curvature provided in step (c), substantially without oxidizing other portions of the semiconductor substrate lining the trench regions; and

(g) after performing the second oxidation, removing said oxidation prevention film and forming a gate oxide film.

47. (currently amended) A method of fabricating a semiconductor device comprising the steps of:

(a) forming an oxidation prevention film on a circuit formation surface of a

semiconductor substrate;

(b) forming a trench having a desired depth at a predetermined position of the circuit formation surface of said semiconductor substrate, the trench having an upper end portion thereof extending to the circuit formation surface of the semiconductor substrate;

(c) thermally oxidizing a trench portion formed in said semiconductor substrate, exposed in said trench, thereby providing the upper end portion of the trench with a radius of curvature;

(d) burying a buried insulating film into said trench so thermally oxidized, said insulating film also being formed on the oxidation prevention film;

(e) removing said insulating film formed on the oxidation prevention film, by chemical mechanical polishing, thereby forming a chemically mechanically polished surface;

(f) after said removing, providing the upper end portion of said trench with an increased radius of curvature, as compared with the radius of curvature provided in step (c), by performing selective thermal oxidation only of the upper end portion of the trench of said semiconductor substrate after having formed the chemically mechanically polished surface, substantially without oxidizing other portions of the semiconductor substrate lining said trench; and

(g) removing said oxidation prevention film formed on the circuit formation surface of said semiconductor substrate.

48. (previously presented) A method of fabricating a semiconductor device according to claim 47, wherein the step (g) of removing the oxidation prevention film is performed after the step (f) of providing the upper end portion of the trench with an increased radius of the curvature.

49. (currently amended) A method of fabricating a semiconductor device according to claim 1, wherein the oxidation prevention film is eliminated after said thermally oxidizing only a portion of said semiconductor substrate.

50. (currently amended A method of fabricating a semiconductor device according to claim 4, wherein the oxidation prevention film is removed after said thermally oxidizing only a portion of said semiconductor substrate.

51. (currently amended) A method of fabricating a semiconductor device according to claim 5, wherein the oxidation prevention film is removed after said thermally oxidizing only a portion of said semiconductor substrate.

52. (currently amended) A method of fabricating a semiconductor device according to claim 10, wherein the oxidation prevention film is removed after said thermally oxidizing only a portion of said semiconductor substrate.

53. (currently amended) A method of fabricating a semiconductor device according to claim 45, wherein said oxidation prevention film is removed after said selectively thermally oxidizing said semiconductor substrate.

54. (currently amended) A method of fabricating a semiconductor device comprising the steps of:

(a) forming an oxidation prevention film on a circuit formation surface of a semiconductor substrate;

(b) forming a trench having a desired depth at a predetermined position of the circuit formation surface of said semiconductor substrate, said trench having an upper end portion adjacent the circuit formation surface of the semiconductor substrate, said trench being formed by a first trench forming step, using isotropic etching, so as to form a radius of curvature in a proximity of the upper end portion, and by a second trench forming step using anisotropic etching;

(c) thermally oxidizing a trench portion formed in said semiconductor substrate, exposed in said trench;

(d) burying a buried insulating film into said trench so thermally oxidized, said insulating film also being formed on the oxidation prevention film;

(e) after burying said buried insulating film, performing an additional thermal oxidation so as to selectively oxidize the semiconductor substrate at said upper end portion of the trench, to increase the radius of curvature in the proximity of the upper end portion of the trench, and substantially without oxidizing other portions of the semiconductor substrate lining the trench;

(f) after burying said buried insulating film, removing said insulating film on the oxidation prevention film;

(g) eliminating said oxidation prevention film formed on said semiconductor substrate; and

(h) after said eliminating, forming a gate oxide film.

55. (previously presented) A method of fabricating a semiconductor device according to claim 54, wherein said further step of performing an additional thermal oxidation is performed after said removing step (f).